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RESEARCH

Avaliação físico-funcional de salas de vacinas da rede pública municipal de Caxias-MA

Physical and functional evaluation of vaccination rooms from the public municipal network of Caxias-MA

Evaluación física y funcional de las salas de vacunas de la red pública municipal de Caxias-MA

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ABSTRACT

Objective: evaluating the standardization of vaccination rooms in Caxias, Maranhão. **Method:** this is an exploratory, observational, cross-sectional study of descriptive type, of a quantitative approach, conducted in the period May to August 2014 in 21 vaccination rooms of Basic Health Units in the city of Caxias, MA. The vaccination rooms were evaluated in relation to the physical space, the permanent material, the support material and consumption, the material to extramural vaccination activity and to printed and manually. **Results:** from the 21 vaccination rooms, 05 were not running. Therefore, we evaluated 16 vaccination rooms. Of these, 62.5% were considered good and 37,5% achieved bad index. **Conclusion:** in the present study, we observed failures in various vaccination rooms, making it difficult to provide a service of suitable protection, standardized by the Ministry of Health. **Descriptors:** Health services evaluation, Vaccines, Immunization programs.

RESUMO

Objetivo: avaliar a padronização das salas de vacinas da cidade de Caxias, Maranhão. **Método:** trata-se de um estudo exploratório, observacional, transversal de cunho descritivo, com abordagem quantitativa, realizado no período de maio a agosto de 2014 em 21 salas de vacinas das Unidades Básicas de Saúde do município do Caxias-MA. As salas de vacinas foram avaliadas em relação ao espaço físico, ao material permanente, ao material de apoio e consumo, ao material para atividade de vacinação extramuros aos impressos e manuais. **Resultados:** das 21 salas de vacinas, 05 não estavam em funcionamento. Portanto, foram avaliadas 16 salas de vacinas. Dessas, 62,5% foram consideradas boas e 37,5% alcançaram índice ruim. **Conclusão:** no presente estudo observaram-se falhas em diversas salas de vacinas, dificultando a prestação de um serviço de proteção adequado, padronizado pelo Ministério da Saúde. **Descritores:** Avaliação de serviços de saúde, Vacina, Programas de imunização.

RESUMEN

Objetivo: evaluar la estandarización de las salas de vacunas de la ciudad de Caxias, Maranhão. **Método:** se trata de un estudio exploratorio, observacional, transversal de naturaleza descriptiva, con abordaje cuantitativo, realizado en el período de mayo hasta agosto, 2014 en 21 salas de vacunas de Unidades Básicas de Salud en la ciudad de Caxias, MA. Las salas de vacunas fueron evaluadas en relación con el espacio físico, material permanente, el material de soporte y el consumo, el material para la inmunización de los manuales de extramuros e impresos. **Resultados:** de las 21 salas de vacunas, 05 no estaban funcionando. Por lo tanto, se evaluaron 16 salas. De éstos, el 62,5% se consideraron buenos y 37,5% alcanzaron malos índices. **Conclusión:** en el presente estudio, se observó fallas en las varias salas de vacunas, por lo que es difícil proporcionar una protección adecuada de servicios, estandarizada por el Ministerio de Salud. **Descriptores:** Evaluación de servicios de salud, Vacunas, Programas de inmunización.

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INTRODUCTION

Vaccination is considered one of the most effective and most cost-effective in the prevention of vaccine-preventable infectious diseases. Seen it in 1973, it was set up in Brazil the National Immunization Program (NIP), in order to coordinate systematic vaccination actions at national level, contributing to the intensification of immunization activities across the country.¹

As a preventive resource of extreme importance to the entire population of the world, which gives beyond individual protection against grave diseases, protecting the community, reducing the presence of infectious agents, the Ministry of Health included strategies of preventive actions that encourage vaccination such as campaigns, and the active search of parents and/or guardians in family health units for routine immunization.²

In order to ensure the safe handling, storage administration of biopharmaceuticals correctly, the Program recommends activities in the vaccine area being carried out by trained nursing staff generally and preferably composed of at least two technicians and nursing assistants for each work shift, and the nurse, the professional responsible for supervising the activities of the vaccine room and the constant education of staff.³

That maintaining the integrity of Rede Frio (RF), including transport and storage of the vaccines, it is a challenge that demands the full integration between the different levels. Taking into account some problems related to the lack of professionals on temperature ranges suitable for conservation, no thermometers or daily temperature monitoring, frequent exposure detection of the products to extreme temperatures ($< 0^{\circ} \text{C}$ and $> 10^{\circ} \text{C}$) during transport and storage, inadequate organization of refrigerators, it is required as well, commitment and responsibility of the Ministry of Health EDAs teams that make up the immunization services, with the ultimate goal of ensuring that all managed products maintain their immunogenic characteristics.⁴

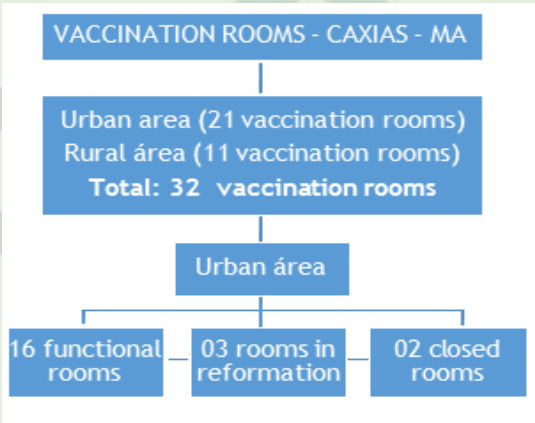
Previous studies conducted in Brazil describe failure to adhere to recommendations for conservation, need for ongoing supervision and adequacy of human resources and equipment, that way if a focused approach for vaccines rooms is necessary, which are often neglected by researchers because there are not many records on this subject in the databases of national literature.⁵

Since the Ministry of Health recommends the supervision of the network of cold systematically to evaluate the conditions of physical-functional area of vaccines rooms, this research was aimed at evaluating the standardization of vaccines rooms in the city of Caxias, Maranhão.

METHOD

It is an exploratory study, observational, cross-sectional of descriptive nature, of a quantitative approach, carried out from May to August 2014 in the city of Caxias, Maranhão, which has 32 Basic Health Units, 11 in the countryside, and 21 in urban areas, with 50 Health Family Teams and cover about 92% of the total area of the city. This study was conducted with vaccines rooms of the urban zone of the municipality. Figure 01 highlights in a simplified way we proceeded to the selection of vaccination rooms.

Figure 1. Flowchart of the selection of rooms



The Municipality of Caxias-MA, according to Brazilian Institute of Geography and Statistics - IBGE,⁶ in census conducted in 2010, the city had about 155.129 inhabitants with statistics 159 396 inhabitants in 2013, with population density of 30,12 inhabitants/km² and Human Development Index (HDI) of 0,614. Caxias-MA is located in the Greater Region of Eastern Maranhão, 374 kilometers from the capital of Maranhão, São Luís and 70 kilometers from Piauí, capital city Teresina.

Informatics of the Unified Health System (DATASUS) and the General Coordination of Immunization Program (CGPNI) of the Secretariat of Health Surveillance/Ministry of Health The instrument follows an approach that highlights the following aspects: 1 - Characterization of vaccines rooms in relation to the physical space; 2 - Characterization of vaccines rooms in relation to permanent materials; 3 - Characterization of vaccines rooms in relation to collateral and consumption; 4 - Characterization of vaccines rooms in material for extramural vaccination activities; and 5 - Characterization of vaccines rooms than in print and manuals.

Held the classification of physical and functional structure of the vaccine room based on an overall assessment of the criteria set out in the evaluation form, which was attributed a score to each evaluated room: 90-100 points, the room is considered optimal ; and 70 to 80 points, good; 0-60 points, bad. The overall index for each point was calculated as the average score of all rooms. We used Microsoft Excel 2013 application for systematization of data, and sewing tables.

RESULTS AND DISCUSSION

The study found that, of the 21 vaccine rooms located in the urban area of Caxias, MA, 05 were not in operation, where 03 of them were not in operation due to the fact that they are under renovation and is working temporarily at another location. Therefore, we evaluated 16 vaccines rooms.

Of the 16 rooms evaluated vaccine, 62,5%, the equivalent of 10 rooms, had score between 70-80 points, and is therefore considered to be good and 37,5% (6 rooms) reached bad index, with a score between 0-60 points.

Item Physical Space (Table 1) shows that 100,0% of vaccines rooms had easy access to the public and taken for each electrical equipment, 81,0% had adequate ventilation and lighting and 56,0% contained washable walls and floors. However, an item was inadequate: 75,0% of the rooms did not sink with tap, which prevents hand washing before and after the administration of biopharmaceuticals and can cause infections in children and adults met.

Table 1. Characterization of vaccination rooms in relation to the physical space, Caxias, Maranhão, 2014.

PHYSICAL SPACE	YES		NO	
	N	%	N	%
Easy access to the public	16	100,0	0	0
Adequate lighting and ventilation, avoiding solar light	13	81,0	03	19,0
Washable walls and floor	09	56,0	07	44,0
Sink with tap	04	25,0	12	75,0
Outlet for each electrical equipment	16	100,0	0	0

Table 2, which deals with permanent material vaccination rooms, there is a number of inappropriate items: most rooms had no computer and printer (100,0%), stainless steel trays of various sizes (94,0%), support for sharps disposal box (94,0%), bench or table for the preparation of biopharmaceuticals (69,0%), trash can with a lid actuated by pedal (69,0%) and soap to liquid soap (56,0%).

Table 2. Characterization of vaccination rooms in permanent material, Caxias, Maranhão, 2014.

	SIM	NÃO
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PERMANENT MATERIAL	N	%	N	%
Camera for immunobiological conservation	16	100,0	0	0
Worktop or table to the immunobiological preparation	05	31,0	11	69,0
Stainless steel pans of various sizes	01	6,0	15	94,0
Desk type desk with drawers	13	81,0	03	19,0
Chairs (3, minimum)	08	50,0	08	50,0
Computer	0	0	16	100,0
Printer	0	0	16	100,0
Cabinet with door for storing consumables	09	56,0	07	44,0
Soap dispenser for liquid soap	07	44,0	09	56,0
Paper towel holder	09	56,0	07	44,0
Trash can with lid activated by pedal	05	31,0	11	69,0
Support for disposable sharp materials for box	01	6,0	15	94,0

With regard to the support material and consumption, it can be observed in table 3 that a very critical: the lack of all immunobiological in 88,0% of vaccines rooms, which interferes with the care for the population. In addition, they observe other inappropriate items, such as: absence stamp for vaccine registration with the National Register of Health Facilities - CNES (81,0%) of 70% alcohol (75,0%) and disposable syringes (37,0%).

Table 3. Characterization of vaccination rooms in relation to the support and consumption material, Caxias, Maranhão, 2014.

SUPPORT AND CONSUMPTION MATERIAL	YES		NO	
	N	%	N	%
All immunobiologicals	02	12,0	14	88,0
Thermometer of maximum and minimum digital	16	100,0	0	0
Clinic digital thermometer	16	100,0	0	0
Container for cotton with cover	15	94,0	01	6,0
Alcohol up to 70%	04	25,0	12	75,0
Thermal box	15	94,0	01	6,0
Reusable ice	16	100,0	0	0
Disposable syringes (1mL, 3mL, 5mL)	10	63,0	06	37,0
Disposable needles for intradermal, subcutaneous, intramuscular use and dilution	14	88,0	02	12,0
Liquid soap	14	88,0	02	12,0
Towel paper	14	88,0	02	12,0
Plastic garbage bag	16	100,0	0	0
Office supplies (pen, pencil, rubber, stamp pad and other)	13	81,0	03	19,0
Stamp with the health unit identification	13	81,0	03	19,0
Vaccine registration stamp with CNES	03	19,0	13	81,0
Vaccination card and mirror card	16	100,0	0	0

Regarding the material for extramural vaccination activity (Table 4), it was found that all vaccines rooms did not have portable alcohol gel dispenser; 25,0% had no tape and 19,0% had no thermometer cable extender and / or cooler coupled with digital thermometer. However, most rooms presented the materials needed to conduct extramural vaccination activities.

Table 4. Characterization of vaccination rooms in relation to material for vaccination extramural activity, Caxias, Maranhão, 2014.

MATERIAL FOR VACCINATION EXTRAMURAL ACTIVITY	YES		NO	
	N	%	N	%
Thermometer extender cable and/or cooler with coupled digital thermometer	13	81,0	03	19,0
Own box to dispose of sharp materials	16	100,0	0	0
Portable alcohol gel dispenser	0	0	16	100,0
Printed for vaccination strategy	16	100,0	0	0
Duct tape	12	75,0	04	25,0

Table 5, which deals with printed manuals and, it is observed that most vaccines rooms had all the forms and manuals prepared by the Ministry of Health. However, 100,0% had no Events Research Form Adverse Post-vaccination; 37,0% did not contain inadequate investigation procedure Form; 12,0% did not have Child Health Handbook (boy/girl) and Adult Immunization Handbook and; 6,0% did not have Vaccine Doses Applied Registry Map, Map Registration temperature Daily and Monthly Bulletin immunobiologicals movement.

Table 5. Characterization of vaccination rooms in relation to printed and manually, Caxias, Maranhão, 2014.

PRINTED AND MANUALLY	SIM		NÃO	
	N	%	N	%
Maternal and child health (boy/girl) and adult vaccination Booklet	14	88,0	02	12,0
Registration of vaccines	16	100,0	0	0
Map of Applied Doses of vaccine registration	15	94,0	01	6,0
Monthly Bulletin of applied doses	16	100,0	0	0
Map to Daily temperature Record	15	94,0	01	6,0
Map of immunobiological movement	16	100,0	0	0
Monthly Bulletin of immunobiological movement	15	94,0	01	6,0
Research record adverse events post-vaccination	0	0	16	100,0
Research record of Inappropriate Procedure	10	63,0	06	37,0
Outlet temperature change notification	16	100,0	0	0
Maps and bulletins specific to Vaccination Campaigns strategies	16	100,0	0	0
Technical Standard of the Immunization Program	16	100,0	0	0

Manual of procedures for Vaccination	16	100,0	0	0
Manual of reference centres for Special Immunobiological	16	100,0	0	0

The vaccination room is responsible for routine immunization procedures, campaigns, locks and enhancements, and is therefore necessary to carry out its activities, the immunobiologicals storage in equipment for proper cooling and in ideal conditions, and other recommendations such as air conditioning room of the vaccine to minimize the risk of unwanted immunobiologicals temperature changes.⁷

Ensure compliance with the rules at all stages of their use - production, distribution, technical procedures of application and orientation - is important so that the original characteristics of the vaccines remain unchanged, thus maintaining their effectiveness.⁸ For this reason, the physical and functional structure of the vaccines rooms must necessarily be in accordance with the standards established by Ministerial Resolution SS-24, of March 8th, 2000, so there is a quality care.

The nurse is fundamental in the administrative and technical aspects of vaccines room, must act in vaccination, supervision and training of the nursing team, in addition to answering the technical aspects related to biopharmaceuticals, the system of record keeping, inventory control, among others. Therefore, it is necessary that the Municipal Health Department provides conditions for these professionals assume such responsibilities, under penalty of having compromised the quality of vaccination services.⁹ However, it is observed that, in fact, appropriate conditions are not offered for the proper functioning of vaccines rooms.

Regarding the physical space demonstrated in Table 1, all vaccines evaluated rooms have easy access to the public. This result corroborates findings in other studies and with the standards.^{5,7-8}

However, for other items related to physical space, it was found that there was adequate ventilation and lighting, sink with faucet and walls and floors washable in all vaccines rooms, as shown in Table 1, a fact that contradicts the standards established by the Ministry of Health, which considers it essential that all health units have vaccine room with conditions to promote safety during the course of the activity, should therefore provide easy access; adequate ventilation and lighting, without; however, direct incidence of light on the immunobiological; contain steel sink, marble or granite, faucet to facilitate cleaning floors and washable walls and to facilitate disinfection.⁷

With regard to the table 02 (Characterization of vaccination rooms in relation to the permanent material), on average, most vaccination rooms have minimal essential materials deficits to achieve the correct immunization customer who uses the said vaccines rooms. One is example is the absence in 94% of vaccination rooms of the stainless steel tray, which is used for the rest of the materials used at the time of the procedure.

Regarding the supporting material and uptake (Table 3), there is the absence of all immunobiological in most vaccination rooms. This reality limits the nursing team practices, preventing the proper development of health care and compromising the service offered, since it generates distrust in the population.¹⁰

Also be seen in Table 3, a very positive point, the presence of maximum thermometer and digital minimal and digital clinical thermometer in all vaccines rooms, which are very important for monitoring of temperature variations and, consequently, for maintaining the initial characteristics of biopharmaceuticals. On the other hand, it can be seen in Table 5, that 6.0% of vaccines rooms do not have a map to daily temperature record, essential tool to follow up.

Changing the storage temperature can compromise the immunogenic potency of the vaccine, ie the features verified and certified by the producer laboratory under certain ideal conditions for storage temperature, shelf life, moisture, light and other.⁷

Concerning extramural vaccination, it is emphasized that these are adopted as a result of an operational and epidemiological need, making the vaccination more accessible to the population.¹¹ Table 4, it appears that, although most vaccines rooms had the necessary materials to carry out the activity, some rooms lack some materials required for such activity, as the thermometer cable extender and/or cooler coupled with digital thermometer.

This undermines the realization of the activity, it is necessary for the transport and conservation of biopharmaceuticals are made under appropriate conditions (refrigerator and/or cool box, reusable ice packs and thermometer), and other criteria and requirements. In extramural work, the temperature should be checked more often to be avoided possible damage to immunobiologicals.¹¹

With regard to printed matter and manuals (Table 5), emphasizes the importance of Adverse Events After Vaccination research form (EAPV - in Portuguese), but it was found that neither of the rooms features such printed, which is key to notification of EAPV.

The incidence of EAPV varies depending on product characteristics, the individual and the administration, and may be benign and have evolving self-limited or occur more severe forms, can lead to temporary or permanent impairment and even the death of the vaccinated individual.⁵ for this reason, the investigation of EAPV and the temporary postponement indication of vaccination are essential to prevent damage to health.

Despite the importance of this form, the study shows that although 52,6% of professionals to know the side effects and know how to identify those who should be referred for medical evaluation, only 31,6% perform.⁸ Notification should be noted, though, the importance of the Municipal Health Department to offer the EAPV investigation records. It is believed that due to non-existence of these records, health professionals' vaccination rooms end up neglecting the EAPV, thus contributing to the underreporting of these events, one evident factor in the State to which that municipality belongs searched. Therefore, the instant is provided to health professionals these chips, there must be training so that they can identify, without difficulty, the EAPV and carry out the notification in a timely manner.

CONCLUSION

In the present study, there were failures in various rooms for vaccination, such as inadequate physical space, incomplete inputs, plus insufficient materials, making it difficult to provide adequate protection service, standardized by the Ministry of Health.

Given the above, it emphasizes the importance of nurses in vaccination rooms, not just limited to supervision of the work of technicians and nursing assistants, as well as the need to structure the rooms, seeking resources and charging of managers the necessary standardization, as the deficiency in this practice could compromise the quality of biopharmaceuticals offered to the population and hence the quality of care.

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